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# Introductory Chapter: Norovirus

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## 1. Introduction

Acute gastroenteritis is a major global health problem and is one of the most common infectious diseases among humans [1, 2].

Despite advances in health technology and management, this diarrhoeal illness remains a common cause of morbidity and mortality [3–5] worldwide. It affects 4.5 billion people and causes 3.5–5 million deaths each year, the majority of which occur in people in developing countries [2, 6, 7]. Acute gastroenteritis leads to approximately 2.5 million deaths annually in children younger than five years in developing countries [8].

Human enteric viruses account for more than half of all cases of gastroenteritis worldwide. There are five common viral agents of gastroenteritis: norovirus, rotavirus, adenovirus (group F types 40, 41), astrovirus, and sapovirus. Norwalk virus is the prototype strain of norovirus, which was associated with an outbreak of gastroenteritis at an elementary school in Norwalk, Ohio, in 1968. Albert Kapikian discovered norovirus as the etiological agent of this outbreak in 1972 [9].

Norovirus results in about 685 million cases of disease and 200,000 deaths annually (“Norovirus Worldwide” (<https://web.archive.org/web/20181207142711/https://www.cdc.gov/norovirus/worldwide.html>) CDC 15 December 2017. Achieved from the original (<https://www.cdc.gov/norovirus/worldwide.html>) on 7 December 2018. Retrieved. 29 December 2017) and Nada [10].

## 2. A brief overview of transmission, symptoms, common treatments and prevention

Norovirus (sometimes referred to as the “winter vomiting bug”) is the most common cause of gastroenteritis. Symptoms of norovirus infection include nausea, vomiting, watery diarrhea, abdominal pain, and in some cases loss of taste. Headaches, fever, general lethargy, weakness, and muscle aches may also occur. The symptoms usually develop 12–48 h after exposure, and recovery takes 1–3 days.

The disease is usually self-limiting and severe illness is rare. Although having norovirus can be unpleasant, it is not dangerous and most who contract it fully recover within a few days. In severe cases, persistent infection can lead to norovirus-associated enteropathy, intestinal villous atrophy, and absorption syndromes.

Noroviruses are transmitted directly from person to person. Norovirus infection occurs in outbreaks, especially among those living in close quarters. The virus usually spread via the fecal–oral route through contaminated food or water.

Prevention involves proper hand washing and disinfection of contaminated surfaces. Alcohol-based hand sanitizers are not effective against the norovirus, according to the National Health Service (NHS). There is no vaccine or specific treatment for norovirus. Management involves supportive treatment such as drinking sufficient fluids or receiving intravenous liquids. Oral dehydration solutions

are preferred and drinks without caffeine or alcohol can help. It must be emphasized that vaccination is the only real possibility to combat this infectious disease. This is where the help of virologists, pediatricians, internists, geriatricians, clinical pharmacologists, pharmacists, chemists, and others is desperately needed.

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